

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for monitoring broadcast multi-media content, comprising the steps of:

(a) receiving multimedia source content;

(b) generating identification information related to [[the]] said multimedia source content;

(c) imperceptibly and repeatedly embedding [[the]] an audio component of said multimedia source content with said identification information to produce an embedded multimedia content;

(d) transferring said identification information to a central repository; [[and]]

(e) transmitting [[the]] said embedded multimedia content through one or more broadcast networks;

(f) receiving said embedded multimedia content after transmission through said one or more transmission channels;

(g) processing said received multimedia content to extract identification information related thereto, wherein multiple copies of embedded information are extracted to estimate a duration of multimedia content embedded with identification information.

2. (Canceled).

3. (Currently Amended) The method of claim 1, wherein a detectability metric is produced by assessing the success of said embedding and [[the]] said detectability metric together with said identification information is transferred to [[a]] said central repository.

4. (Currently Amended) The method of ~~claim 2~~ claim 1, wherein extraction of [[the]] said identification information is conducted in the presence of multiple transmission channel impairments.

5. (Currently Amended) The method of claim 1, wherein said embedding is repeated in [[the]] temporal domain.

6. (Original) The method of claim 1, wherein said embedding is repeated at different frequencies.

7. (Currently Amended) The method of claim 1, wherein said embedding is repeated in both [[the]] temporal and frequency domains.

8. (Currently Amended) The method of ~~claim 2~~ claim 1, wherein said multiple copies of embedded information are extracted to improve [[the]] reliability of multimedia monitoring.

9. (Canceled).

10. (Currently Amended) The method of claim 8, wherein said multiple copies are extracted from [[the]] said embedded multimedia content received from a single transmission channel.

11. (Currently Amended) The method of claim 8, wherein said multiple copies are extracted from [[the]] said embedded multimedia content received from a plurality of transmission channels.

12. (Original) The method of claim 8, wherein said multiple copies are extracted using a redundant network of receivers.

13. (Original) The method of claim 12, wherein said redundant receivers are deployed in separate geographical locations.

14. (Currently Amended) The method of claim 1, wherein [[the]] said embedded multimedia content is transmitted over at least one terrestrial broadcast channel.

15. (Currently Amended) The method of claim 1, wherein [[the]] said embedded multimedia content is transmitted over at least one Internet broadcast channel.

16. (Currently Amended) The method of claim 1, wherein [[the]] said embedded multimedia content is transmitted over at least one cable broadcast channel.

17. (Currently Amended) The method of claim 1, wherein [[the]] said embedded multimedia content is transmitted over at least one satellite broadcast channel.

18. (Currently Amended) The method of ~~claim 2~~ claim 1, wherein said extracted identification information is used to identify at least one of:

- (i) a broadcast advertisement content,
- (ii) a broadcast music content,
- (iii) a broadcast television or radio program content.

19. (Currently Amended) The method of claim 1, wherein: A method for monitoring broadcast multi-media content, comprising:

- (a) receiving multimedia source content;
- (b) generating identification information related to said multimedia source content;
- (c) imperceptibly and repeatedly embedding an audio component of said multimedia source content with said identification information to produce an embedded multimedia content;
- (d) transferring said identification information to a central repository; and
- (e) transmitting said embedded multimedia content through one or more broadcast networks, wherein

copies of embedded information are extracted from [[the]] said transmitted multimedia content, and

spacing of [[the]] said extracted copies of embedded information is used to estimate boundaries of back-to-back encoded multimedia clips.

20. (Currently Amended) The method of claim 1, wherein:

~~the transmitted multimedia content is received; and~~

the effectiveness of monitoring is enhanced by measuring received transmission channel characteristics to provide a measure of [[the]] quality of at least one of a received transmission or a transmission channel.

21. (Original) The method of claim 20, wherein said received transmission channel characteristics comprise at least one of Signal-to-Noise-Ratio (SNR) and dropped packet rate.

22. (Currently Amended) The method of ~~claim 1~~ claim 3, wherein [[the]] said detectability metric is used at monitoring sites to improve [[the]] reliability of detection reports.

23. (Currently Amended) The method of ~~claim 1~~ claim 3, wherein [[the]] said detectability metric and measured transmission channel characteristics are used at said monitoring sites to improve [[the]] reliability of multimedia monitoring.

24. (Currently Amended) The method of claim 23, wherein said received transmission channel characteristics comprise at least one of a Signal-to-Noise-Ratio (SNR) and a dropped packet rate.

25. (Currently Amended) The method of ~~claim 1~~ claim 3, wherein [[the]] said identification information is re-embeddable with modified embedding strength based on [[the]] said detectability metric.

26. (Currently Amended) The method of claim 1, wherein [[the]] a type and an extent of impairments present in a transmission channel are identified based on [[the]] quality of information extracted from [[the]] said embedded multimedia content carried on said channel.

27. (Original) The method of claim 1, wherein multiple points of origin of a composite transmission of said embedded multimedia content are differentiated.

28. (Original) The method of claim 27, wherein said multiple points of origin comprise at least one of:

- (i) a local broadcast segment of a given networked television broadcast,
- (ii) a regional broadcast segment of a given networked television broadcast,
- (iii) a national broadcast segment of a given networked television broadcast,
- (iv) an interstitially inserted advertisement in an Internet stream.

29. (Currently Amended) The method of claim 1, wherein, prior to [[the]] transmission of said embedded multimedia content, in step (f), the said embedded multimedia content is examined for [[the]] a presence of a valid watermark.

30. (Currently Amended) The method of claim 29, wherein [[the]] validity of an embedded watermark is ascertained by verifying the embedded identification information obtained from extraction of said watermark against information residing in a database.

31. (Currently Amended) A system for monitoring broadcast multi-media content, said system comprising:

- (a) a receiver for receiving configured to receive multimedia source content;
- (b) identification information generating means for generating configured to generate identification information related to [[the]] said multimedia source content;
- (c) an embedder configured to [[or]] imperceptibly and repeatedly embedding embed an audio component of said multimedia source content with said identification information to produce an embedded multimedia content;
- (d) transfer means for transferring configured to transfer said identification information to a central repository;
- (e) a transmitter for broadcasting the configured to broadcast said embedded multimedia content through one or more broadcast networks;
- (f) reception means for receiving configured to receive said broadcast embedded multimedia content after transmission through said one or more broadcast networks; and
- (g) a processor for processing the configured to process said received broadcast multimedia content to extract identification information related thereto, wherein extraction of

multiple copies of embedded information is used to estimate a duration of multimedia content embedded with identification information.

32. (Currently Amended) The multimedia monitoring system of claim 31, further comprising watermark assessment means ~~for producing~~ configured to produce a detectability metric by assessing the success of said embedding and transfer means for transferring said detectability metric together with said identification information to a central repository.

33. (Original) The multimedia monitoring system of claim 31, wherein extraction of embedded information is conducted in the presence of multiple transmission channel impairments.

34. (Currently Amended) The multimedia monitoring system of claim 31, wherein said embedding is repeated in [[the]] temporal domain.

35. (Original) The multimedia monitoring system of claim 31, wherein said embedding is repeated in different frequency domains.

36. (Currently Amended) The multimedia monitoring system of claim 31, wherein said embedding is repeated in both [[the]] temporal and frequency domains.

37. (Currently Amended) The multimedia monitoring system of claim 31, wherein extraction of said multiple copies of embedded information is used to improve [[the]] reliability of multimedia monitoring.

38. (Canceled).

39. (Currently Amended) The multimedia monitoring system of ~~claim 38~~ claim 31, wherein said multiple copies are extracted from [[the]] said embedded multimedia content received from a single transmission channel.

40. (Currently Amended) The multimedia monitoring system of ~~claim 38~~ claim 31, wherein said multiple copies are extracted from [[the]] said embedded multimedia content received from a plurality of transmission channels.

41. (Currently Amended) The multimedia monitoring system of ~~claim 38~~ claim 31, wherein said multiple copies are extracted using a redundant network of receivers.

42. (Original) The multimedia monitoring system of claim 41, wherein said redundant receivers are deployed in separate geographical locations.

43. (Currently Amended) The multimedia monitoring system of claim 31, wherein at least one ~~transmission channel for the broadcast multimedia content of said one or more broadcast networks~~ is a terrestrial broadcast channel.

44. (Currently Amended) The multimedia monitoring system of claim 31, wherein at least one ~~transmission channel for the broadcast multimedia content of said one or more broadcast networks~~ is an Internet broadcast channel.

45. (Currently Amended) The multimedia monitoring system of claim 31, wherein at least one ~~transmission channel for the broadcast multimedia content of said one or more broadcast networks~~ is a cable broadcast channel.

46. (Currently Amended) The multimedia monitoring system of claim 31, wherein at least one ~~transmission channel for the broadcast multimedia content of said one or more broadcast networks~~ is satellite broadcast channel.

47. (Currently Amended) The multimedia monitoring system of claim 31, wherein said extracted identification information is used to identify at least one of:

- (i) a broadcast advertisement content,
- (ii) a broadcast music content,
- (iii) a broadcast television or radio program content.

48. (Currently Amended) The ~~multimedia monitoring system of claim 31~~ A system for monitoring broadcast multi-media content, comprising:

- (a) a receiver configured to receive multimedia source content;
- (b) identification information generating means configured to generate identification information related to said multimedia source content;
- (c) an embedder configured to imperceptibly and repeatedly embed an audio component of said multimedia source content with said identification information to produce an embedded multimedia content;
- (d) transfer means configured to transfer said identification information to a central repository;
- (e) a transmitter configured to broadcast said embedded multimedia content through one or more broadcast networks;
- (f) reception means configured to receive said broadcast multimedia content; and
- (g) a processor configured to process said received broadcast multimedia content to extract identification information related thereto, wherein spacing of extracted copies of embedded information is used to estimate [[the]] boundaries of back-to-back encoded multimedia clips.

49. (Currently Amended) The multimedia monitoring system of claim 31, wherein [[the]] effectiveness of monitoring is enhanced by measuring received transmission channel characteristics to provide a measure of [[the]] quality of at least one of a received transmission or a transmission channel.

50. (Currently Amended) The multimedia monitoring system of claim 49, wherein said channel characteristics comprise at least one of a Signal-to-Noise-Ratio (SNR) and a dropped packet rate.

51. (Currently Amended) The multimedia monitoring system of ~~claim 31~~ claim 32, wherein [[the]] said detectability metric is used at monitoring sites to improve [[the]] reliability of detection reports.

52. (Currently Amended) The multimedia monitoring system of ~~claim 31~~ claim 32, wherein [[the]] said detectability metric and measured transmission channel characteristics are used at [[the]] said monitoring sites to improve [[the]] reliability of multimedia monitoring.

53. (Currently Amended) The multimedia monitoring system of ~~claim 31~~ claim 32, wherein [[the]] said identification information is re-embeddable with a modified embedding strength based on [[the]] said detectability metric.

54. (Currently Amended) The multimedia monitoring system of claim 31, wherein [[the]] a type and an extent of impairments present in ~~a transmission channel for the broadcast multimedia content~~ said one or more broadcast networks are identified based on [[a]] quality of extracted information from [[the]] said embedded multimedia content.

55. (Original) The multimedia monitoring system of claim 31, wherein multiple points of origin of a composite transmission of said embedded multimedia content are differentiated.

56. (Original) The multimedia monitoring system of claim 55, wherein said multiple points of origin comprise at least one of:

- (i) a local broadcast segment of a given networked television broadcast,
- (ii) a regional broadcast segment of a given networked television broadcast,
- (iii) a national broadcast segment of a given networked television broadcast,
- (iv) an interstitially inserted advertisement in an Internet stream.

57. (Currently Amended) The multimedia monitoring system of claim 31, ~~wherein further configured to examine said embedded multimedia content for presence of a valid watermark prior to the transmission of said embedded multimedia content in step (f), the multimedia content is examined for the presence of a valid watermark.~~

58. (Currently Amended) The system in accordance with claim 57, ~~wherein the further configured to ascertain validity of an embedded watermark is ascertained by verifying the~~

~~embedded~~ identification information obtained from extraction of said watermark against information residing in a database.

59 - 64. (Canceled).